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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/282,303 | 03/31/1999 | JES BROENG | 3701-4000 | 8406 |

7590 02/28/2003

MORGAN & FINNEGAN LLP
345 PARK AVENUE
NEW YORK, NY 10154

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| EXAMINER |
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NATIVIDAD, PHILIP SANA

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| ART UNIT | PAPER NUMBER |
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2877

18

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/282,303

Applicant(s)

BROENG ET AL. 

Examiner

Phil Natividad

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/29/2, 5/23/2, 8/27/2.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-135 is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-25, 46, 47, 67-70, 91, 92, 107-109, 124 and 131 is/are allowed.
- 6) ☒ Claim(s) 9-11, 37-40, 52, 54-58, 79-86, 97-100, 116-121, 127, 128, 134 and 135 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 6, 13, 17
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims withdrawn from consideration are 1-8,12-17,26-36,41-45,48-51,53,59-66,71-78,87-90,93-96,101-106,110-115,122,123,125,126,129,130,132 and 133.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of species Group II Fig. 13, claims 18-25, 37-40, 46-47, 52, 54-58, (67-70, 79-86), (91-92, 97-100), (107-109, 116-121), (124, 127-128), (131, 134-135) in Paper No. 14 is acknowledged. Examiner has included claims 9 and 54 for examination (asserted as generic to species), even though potentially further restrictable (since combination claim 9 nor 54 do not require the first circle- nor hex-polygon- particulars of subcombination claims 18 or 37, and have separate utility). Examiner included claims 128 and 135 as if applicant had amended them analogously to claims 83, 99, and 119 to be dependent from elected claim 54 instead of non-elected claim 44, as appears to have been applicant's intent. Examiner attempted to contact applicant's representative Robert Pollero to discuss these matters by telephone but was unsuccessful.

Summary listing of claims withdrawn from consideration is item 4a of Office Action Summary p. 1 above.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

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122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 9-10, 37 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by DiGiovanni et al. (5,802,236). DiGiovanni discloses core region, and cladding region comprising periodic structure of primary elements with refractive index lower than adjacent material (col. 5 lines 6-16), further disclosing a unit cell (col. 5 lines 16+). As to claims 9-10, the sum of areas of elements in exemplary hexagonal unit cell in Fig. 2 is 6 times the area of any one of them (or at least $6 \times 1/3 =$ twice the area if unit cell defined center-to-center), which is larger than 1.2 or 1.3 times the area of any one of them. As to claims 37 and 40, with a hexagonal polygon defined as the same as the hexagonal unit cell (vertex-to-vertex as center-to-center of the primary elements), the polygon will of course have area (meeting less than or) equal to the unit cell.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiovanni et al. ('236) in view of DiGiovanni et al. ('652). DiGiovanni '236 discloses secondary elements/outer cladding of smaller area (Fig. 5), except without expressly disclosing specific secondary element area not exceeding $1/6$ or $1/8$ of a primary element. DiGiovanni '652 teaches that specific elements may fuse during drawing into a cladding region. It would have been

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obvious to one of ordinary skill in the art to vary the specific ratio of sizes/areas of the longitudinal elements, for a motivation of optimizing the desired effective refractive index ('236 col. 2 lines 13-49).

6. Claims 54-58, 11, 52, (79-86, 97-100), (116-121, 127-128, 134-135) are rejected under 35 U.S.C. 103(a) as being unpatentable over DiGiovanni et al. ('236) in view of DiGiovanni et al. ('652). DiGiovanni '236 discloses core region, cladding region having periodic structure comprising primary elements with lower refractive index, and further comprising secondary (outer) cladding region with higher refractive index, except without expressly disclosing specific secondary elements. However, DiGiovanni '652 teaches that specific secondary elements may fuse (or not, fully, see Fig. 4) during drawing, into a cladding region. Thus, it would have been obvious to one of ordinary skill in the art to apply the primary/secondary cladding teachings of '236 to the specific secondary elements of '652, for a motivation of choosing the desired effective refractive index ('236 col. 2 lines 13-49).

7. As to claims 79-86 and 97-100, as applied above, the prior art reads on applicant's claims, except for these further specifics of multiple cores/core regions. However, it would have been obvious to one of ordinary skill in the art at the time to modify the prior art to obtain applicant's claims, of which Official Notice is taken, e.g. for motivation of selecting single mode or multimode ('236 col. 3 line 27+ lines 26-36).

8. As to claims 116-121, 127-128, 134-135 as applied above, the prior art reads on applicant's claims, except for these further specific utility applications of the invention. It would have been obvious to one of ordinary skill in the art to modify the prior art to obtain applicant's

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claims, of which Official Notice is taken, for the motivation of simpler, less costly method for making ('236 col. 2 line 3) PBG/PCF sensors, fiber amplifiers, or lasers.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Greenaway et al. (6,301,420). Wang (6,418,258). Allan et al. (6,243,522).

Allowable Subject Matter

10. Claims 18-25, 46-47, 67-70, 91-92, 107-109, 124, 131 are allowable.

11. The following is a statement of reasons for the indication of allowable subject matter: As to claim 18, the prior art of record, taken alone or in combination, fails to disclose or render obvious $n_d \Lambda_2 > n_{ud} \Lambda_1 (\sqrt{3})$, in combination with all the rest of the limitations of claim 18.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner can be directed to Phil Natividad whose telephone number is 703-306-5944. The examiner can normally be reached on Tuesday through Friday and alternating Mondays; and supervising patent examiner Frank G. Font can be reached at 703-308-4881.

In view of delays in mail delivery in recent days, we at the USPTO would like to encourage you to communicate with the USPTO via facsimile. Facsimile transmissions may be used for correspondence as set forth in 37 CFR 1.6 such as: amendments, petitions for extension of time, authorization to charge a deposit account, an IDS, terminal disclaimers, a notice of appeal, an appeal brief, CPAs under 37 CFR 1.53(d), and RCEs.

PTO Form 2038 should be used when authorizing payment by credit card; this form is maintained separate from the file to ensure confidentiality.

The USPTO has recently installed server software that enables us to automatically receive facsimile transmissions and route them to the appropriate groups. No special equipment is needed by our customers to use this system other than a regular facsimile machine. Each Technology Center has its own facsimile numbers associated with our server for Official replies to non-final Office actions and for Official replies to final Office actions. In

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addition, each Technology Center has a Customer Service Center on our server system, and can answer any general application status questions you might have, can provide Examiner information, and answer paper queries.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 or 703-308-7722 for regular communications and 703-872-9319 or 703-308-7722 for After Final communications.

Tech Center 2800 Customer Service is at 703-306-3329 or 703-872-9317. Any inquiry of a general nature or relating to the status of this application or proceeding can also be directed to the receptionist whose telephone number is 703-308-0956.

PSN

Phil Natividad
Patent Examiner
psn
February 13, 2003

[Signature]
FRANK G. FONT

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800